Differential diagnosis of canine and feline viral dermatoses

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DIFFERENTIAL DIAGNOSIS OF CANINE AND FELINE VIRAL DERMATOSES

Claude Favrot, DVM, MsSc, Dip.ECVD

Clinic for Small Animal Internal Medicine. Dermatology Unit. Vetsuisse Faculty in Zurich. Zurich. Switzerland

Viral dermatoses are uncommon in cat and rare in dogs. Their recognition is however very important because some of them bear some resemblance with very common dermatoses (Feline herpesvirus infection and facial allergic dermatitis), can be life-threatening (FeIV-associated dermatoses) or have a zoonotic potential (Poxvirus infections).

Feline Herpesvirus 1 causes rhinotracheitis, stomatitis, keratitis and sometimes pneumonia in domestic cat. This infection may be acute, subacute or latent. Latent infections take place in the trigemminal ganglia and reactivation occurs upon stress or concurrent disease. The virus sometimes causes erosive facial dermatitis, which may mimic other facial feline dermatitis such as allergic dermatitis. The general condition is usually affected and typical signs of feline rhinotracheitis are usually present or have been noticed by the owners before onset of the dermatitis. Skin lesions usually resolve spontaneously within a few days but recurrences are often observed.

Feline poxvirus infections are caused by cowpoxvirus and most of the affected cats are probably contaminated through contact with wild rodents. Initial infection occurs in the mouth or the skin and spreads via the lymphatics. Initial viral replication occurs locally and is associated with pyrexia and sometime a typical pock lesion (umbilicated papulo-pustule). The virus subsequently disseminates through the lymphatics and causes multiple cutaneous papules that ulcerate readily. Mucous membrane lesions, conjunctivitis, and sometimes pneumonia may be associated with the skin lesions. The infection usually regresses within a few weeks in non-immunosuppressed cats. Infections may however be fatal in cats with concurrent immunosuppressive conditions or treatments. Affected cats may be the cause of severe human infections.

FeLV is an oncogenic and immunosuppressive retrovirus. Affected cats are prone to secondary skin infections (pyoderma, dermatophytosis, demodicosis…) and some of them develop specific cutaneous changes. Multiple cutaneous horn have, for example, been reported in association with FeLV infection and viral antigens have been demonstrated in the affected epidermis. As well, the so-called giant cell dermatosis is an exfoliative and ulcerative condition due to the local replication of the virus. The condition is characterized by the formation of syncitium within the affected epidermis. Cutaneous lymphomas have also been described in association with this infection.

Calicivirus causes rhinitis, conjonctivtis and oral ulcerations in domestic cats. Pustular dermatitis has also been described in association with this infection. It was also recently reported that calicivirus might cause facial and pedal ulcerative dermatitis. Affected felin usually present the typical signs of the infection but also

some widespread changes of the facial and pedal skin. Fever and limb oedema usually precede the onset of skin lesions. Regression of the clinical signs usually occurs within a few days in non-immunosuppressed cats.

Papillomaviruses cause a wide range of skin changes in most mammals and birds. Warts are the most frequent skin lesions associated with the epidermal replication of the virus but flat lesions, commensal infections and skin cancers may also result from PV infections.
Cats may be affected by PV-induced plaques. They are usually hyperpigmented and are often numerous and disseminated. Most of these lesions persist but regression is sometimes observed in immunosuppressed animals when the cause of the immune system impairment is controlled. Conversely, some of these plaques may develop into in situ squamous cell carcinoma. As these carcinomas bear some resemblance with human Bowen's disease, the term bowenoid is situ carcinomas was recently coined to describe this feline condition.

As most of these occur exclusively or preferentially on the face and cause ulcerations, erosions and crusts, these conditions belong to the differential diagnosis of one of the most frequent feline dermatological complaint: the cat with facial crusty or ulcerative lesions. The most important differential diagnoses of this group are allergic diseases, auto-immune disease (pemphigus foliaceus), dermatophytosis, some ectoparasitic conditions like demodicosis or notoedres infection and some forms of squamous cell carcinoma.

The most frequent viral skin diseases in the dog are caused by papillomaviruses. The most frequent clinical presentation is the typical juvenile warts. Cauliflower lesions are virtually pathognomonic and usually develop in the mouth and the perioral skin. They may sometimes be observed in other body areas such as the nose, the eyelids and the abdomen. They usually resolved within two to three months and recurrences are rare.
Warts occurring later in life are frequently more resistant and surgical removal may be mandatory.
As mentioned above, papillomavirus-induced warts are usually very easy to recognize. This is not the case of other forms of PV infection in the dogs, especially pigmented plaques. These lesions may be misdiagnosed as lentigo. In fact they present as hyperpigmented macules and are not associated with any inflammation, at least in the first stages of the development. Some breeds such as pugs are predisposed. In rare cases, these hyperpigmented plaques may develop into in situ and invasive squamous cell carcinomas. It is important to mention that numerous PV have been described in dogs and that each different species induce specific changes.
Other viral conditions are rare in the dogs. It is however important to be able to recognize the skin changes associated with distemper virus, the so called hard pad disease.

Selected References

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